Active Band-pass Filter up to 5 MHz

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Constructing an active bandpass filter is greatly simplified by using the LT1567 from Linear Technology (www.linear-tech.com/pdf/1567i.pdf). The circuit shown here uses relatively few external components to build a 2nd order bandpass filter with a centre frequency of 1 MHz and a –3 dB bandwidth of 0.71 MHz. The centre frequency gain will be unity. The circuit should be driven from a low impedance source so that R1 will define the circuit gain. To recalculate the bandpass filters components for other frequencies the filter bandwidth ($BW_{-3\ dB}$) is given by:

$$BW_{-3\ dB} = 1 / (2\pi RC).$$

while the centre frequency (f_0) is given by:

$$f_0 = BW_{-3\ dB} \times \sqrt{(A_0 + 1)}$$

Where:

R=R2=R3 and C=C1=C2.

A_0 (gain at f_0) = R / R1.

$f_{0(max)}$ (maximum centre frequency) = 5 MHz / A_0

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